OVIPOSITIONAL BEHAVIOUR OF *SPHODROPODA TRISTIS* SAUSSURE (MANTODEA: MANTIDAE)

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Abstract

Females of the mantid *Sphodropoda tristis* Saussure dig holes in sandy soil, in which they lay oothecae. The possibility of similar behaviour in other Australian mantids and the finding of an ootheca under a rock is discussed.

Although Key (1970) stated that the ootheca of *Rhodomantis* "is formed beneath the surface of sandy soil" there appear to be no published observations of this behaviour. A female of *Sphodropoda tristis* Saussure has been twice observed by R. C. C. to lay oothecae in soil at Mt Gravatt, Brisbane. The observations are recorded below.

On 24 February 1981, a female mantid was observed under recently completed house extensions. It was lying on a sandy part of a former lawn, 1 m in from the outer edge of the extension. The tip of the abdomen was placed in a hole and was exuding a white frothy substance. Two hours later the mantid had disappeared and the hole was filled with loose sand. Two days later an ootheca was found at the site, buried 2 cm below the surface.

The following afternoon, a mantid, possibly the same one, was found on an area of dry turf 1 m from the original site and, again, 1 m from the outer edge of the extension. It had dug and apparently abandoned a conical hole 2 cm deep with surface diameter of 2 cm. When found the mantid was 3 cm away digging a second hole, using its forelegs alternately, much like a dog digging, throwing the soil backwards and sideways. Grass roots seemed to hinder this excavation. At a depth of 3 cm the mantid turned and extended its abdomen into the hole but then, evidently, became disturbed by the observer.

The mantid ran quickly towards the outer edge of the extension but, when deterred by the observed, it returned under the extension to a sandy area 1 m from the former location. This site was less than 0.5 m from the edge of the extension and in close proximity to a croton shrub (*Codiaeum* sp.). The mantid immediately began digging very swiftly and within 3 minutes had dug a hole to a depth of 3 cm. It then turned and extended the end of its abdomen into the hole and remained in this position for almost 2 hours, occasionally twitching its abdomen or flexing its forelegs. During this period a frothy white ootheca was being exuded into the hole (Fig. 1). The mantid eventually withdrew its abdomen and lay motionless at full length beside the hole for 3 minutes before filling it with sand. It accomplished this by using its mid and hind legs in a scrabbling sideways motion to push loose sand into the hole. After 3 seconds of leg movement the mantid rested for 1 minute. It repeated this process 9 times, completely filling and smoothing

Fig. 1. *Sphodropoda tristis* Saussure, ♀, laying its ootheca in a hole it had dug in the ground.

over the hole which was then indistinguishable from the surrounding sand patch. The ootheca from this site was dug out 2 days later.

All the activities recorded were within 1 m of the outer edge of the extensions which were 2 m above ground level. The ground had been previously covered by a couch grass lawn top-dressed with sand, and largely disturbed during the building activities. The withered and dying remaining grass was interspersed with small sandy patches.

The two oothecae are dark brown, 2.5-3.0 cm long and are flattened in the dorso-ventral plane. In each the egg-line is obscure and somewhat flattened and deformed. Apart from deformation through being laid in the soil and being encrusted with sand grains, the oothecae are similar in size and composition to a large ootheca of *Mantis octospilota* Westwood, a genus with species found in Europe, Africa, Asia and North America. The *S. tristis* female from the last site was captured and is now preserved in the Queensland Museum together with its ootheca.

Sphodropoda tristis Saussure is a medium-sized mantid (length *ca.* 6 cm), widespread in northern and inland Australia. It seems to be essentially a shrub dweller although very early instars of the various species of *Sphodropoda* and also of *Pseudomantis*, a genus with species of somewhat similar size and habits, are frequently found at a low level or running freely

on the ground. Adult females of some species of *Sphodropoda* are short-winged and flightless but others are frequently caught at lights.

On 16 September 1981 Dr D. C. F. Rentz found an ootheca on the underside of a stone *ca.* 2 cm in the ground at Karagullen near Kelmscott, Western Australia. Unfortunately, nymphs emerged and died during a period when the ootheca was not under observation and thus could not be reared to the stage where positive identification could be made. They appear to be either a species of *Pseudomantis* or another species of *Sphodropoda.*

The females of *Rhodomantis*, the genus which Key (1970) recorded as forming oothecae in the soil, are very short-winged and are usually found on low grasses or free-running on the ground. The short-winged females of *Coenomantis* and the small females of *Bolbe* (length *ca.* 1 cm) and *Cliomantis* (length *ca.* 1.5 cm) are also ground dwellers. It is probable that they, too, lay their oothecae in the ground.

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VANESSA ITEA (F.) (LEPIDOPTERA: NYMPHALINAE) OVIPOSITING ON *PARIETARIA DEBILIS* G. FORST. IN AUSTRALIA

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Larvae of the Australian admiral butterfly, *Vanessa itea* (F.) utilise both the native *Urtica incisa* and the introduced *U. urens* as food plants and in Tasmania larvae have also been recorded feeding on the introduced ornamental *Soleirolia soleirolia* (all family Urticaceae) (Common and Waterhouse, 1981).

On 18 September 1983, a specimen was observed ovipositing on another member of the Urticaceae, *Parietaria debilis* G. Forst. at Ginninderra Falls, New South Wales. The eggs were deposited in a pair on the undersurface of a petiole, near the leaf base.

P. debilis has been recorded as a larval food plant for this butterfly in New Zealand (Sharell, 1971).

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